



Electro-Voice®
a gulton company

Model PL77A Condenser Cardioid Vocal Microphone

SPECIFICATIONS

Generating Element:

Electret condenser

Frequency Response (see Figure 3):

50 - 20,000 Hz

Polar Pattern (see Figure 4):

Cardioid

Impedance:

150 ohms balanced

Output Level:

-50 dB with
phantom power or 4.5-volt battery
-54 dB with
1.5-volt battery
(0 dB = 1 mW/10 dynes/cm²)

EIA Sensitivity:

-144 dB with
phantom power or 4.5-volt battery
-148 dB with
1.5-volt battery

Dynamic Range:

100 dB with
phantom power or 4.5-volt battery
94 dB with
1.5-volt battery

Equivalent Noise Level:

Less than 30 dB
(0 dB = .0002 dynes/cm²)
A weighted

Power Supply:

4.5- or 1.5-volt internal battery
(not included)
or 24-to-48-volt phantom supply

Battery Selection Guide,

4.5-Volt Battery,

Carbon Zinc:

Eveready No. 333

Alkaline:

Mallory PX-21
Eveready 523
Burgess AL-523
Panasonic PX-21

*Mercury:

Mallory TR-133
Eveready E-133
Burgess H-133
Panasonic H3P

1.5-Volt Battery:

Any AA size cell

Current Drain:

1 mA from 1.5-volt battery
3-5 mA from 4.5-volt battery or
phantom power

Battery Life,

4.5-Volt Battery,

Carbon Zinc:

150 hours

Alkaline:

175 hours

Mercury:

350 hours

1.5-Volt Battery:

In excess of 1000 hours for any
type AA size cell

*Do not use below 4.5° C (40° F)

Switches, Two:

Bass contour and battery "on-off"

Pop Filter:

Built-in Acoustifoam™ filter

Case Material:

Diecast zinc & aluminum

Dimensions:

191 mm long (7.5")
25.4 mm (1.0") shank diameter
50.8 mm (2.0") maximum diameter

Weight:

343 grams (12 oz)
(with battery but not
including cable)

Finish:

Non-reflecting gray

Accessories Furnished:

301 stand adapter
Zippered vinyl carrying case

Optional Accessories:

376 windscreen
380 attenuator
AC24M power supply
541 25' professional cable with
A3F type connector at mike end
542 25' professional cable with
A3F & A3M type connectors
543 25' professional cable with
switch connector at mike end
544 50' professional cable with
A3F & A3M type connectors

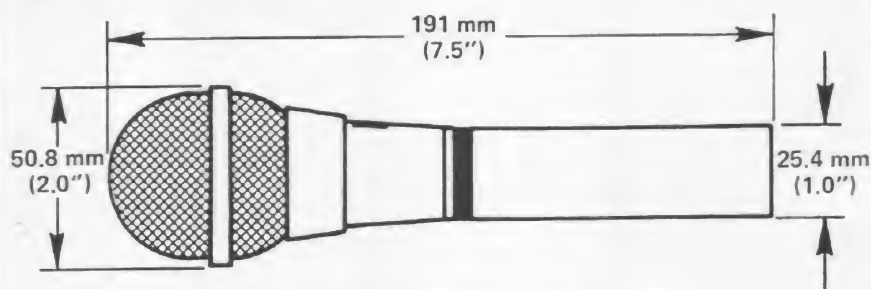


FIGURE 1 – Dimensions

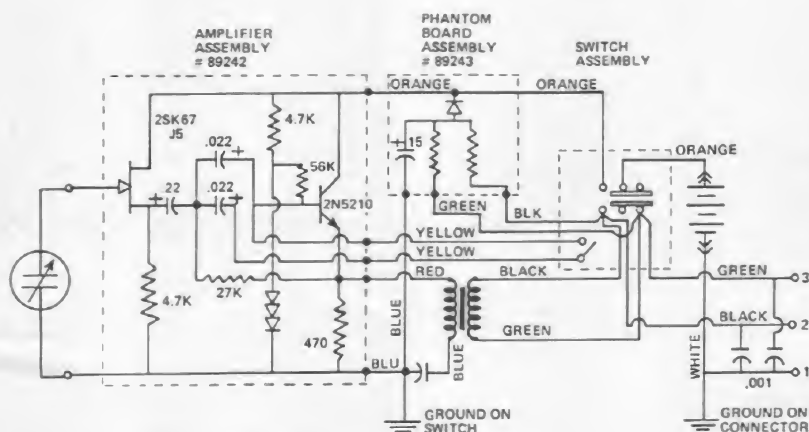


FIGURE 2 – Wiring Diagram

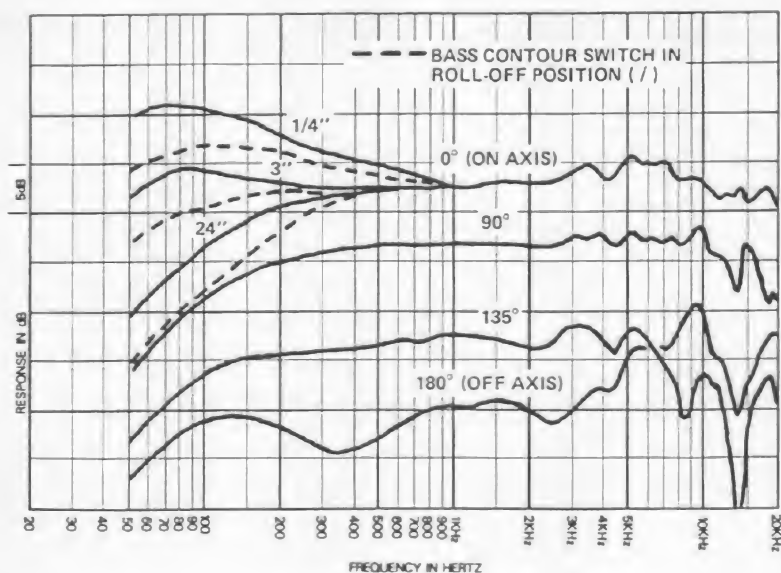


FIGURE 3 – Frequency Response

DESCRIPTION & APPLICATIONS

The Electro-Voice PL77A is a Single-D electret condenser cardioid microphone designed for the professional vocalist. The unusually extended, shaped high-frequency response provides a natural, transparent sound quality not available in the usual vocal microphones (see Figure 3). The Single-D design provides the up-close bass boost (proximity effect) preferred by many entertainers. In addition, the PL77A features a two-position bass response switch which effectively tailors the sound to fit the voice. Unusually uniform directional characteristics over the entire frequency range (see Figures 3 and 4) provide high feedback resistance when working close to sound reinforcement speakers and monitors. A built-in Acoustifoam™ blast filter enables close talking or singing without worry of "P-popping" or other excessive breath and sibilant noise. The very low mass of the generating element acts as an effective shock mount which keeps handling noise to a minimum. The rugged construction of the PL77A makes it unique among other condenser microphones. The case is constructed of rugged diecast zinc and the battery compartment sleeve is made of aluminum. The Memraflex grille screen resists deformation. The PL77A may be phantom or battery powered (see the following section).

POWERING THE PL77A

Unlike normal condenser microphones, the electret condenser does not need a polarizing voltage because a permanent charge is captured in the diaphragm material. However, a small voltage with low current drain is necessary to power the FET impedance converter which must be used to lower the extremely high impedance of the electret head.

Phantom Powering

Powering the PL77A may be accomplished by use of an external DC phantom power source within the range of 24 to 48 volts. The Electro-Voice AC24M is designed for this purpose. With three AC24S expander modules up to fourteen PL77A's may be powered.

Battery Powering

The PL77A may also be powered by an internal battery. To prolong battery life, the PL77A's on/off switch should be in the "off" position when the microphone is not in use. Usually, as a battery approaches the end of its service life, a gradual but noticeable reduction in

microphone output level occurs, allowing replacement of the battery without a program interruption.

Access to the battery compartment is gained by unscrewing and pulling away the sleeve shown in Figure 5, exposing the battery clips. A 4.5- or 1.5-volt battery may be inserted, being sure to follow the polarization (plus and minus) label. A 4.5-volt battery should be used for maximum output level and dynamic range. The more easily obtainable 1.5-volt AA-size battery will produce a slightly lower dynamic range and output level (see "Specifications" section). Specific batteries and battery life figures are also shown in the "Specifications" section. In general, alkaline and mercury batteries are recommended because of much greater shelf life and less likelihood of leakage. However, with regular usage, a fresh carbon-zinc battery will give nearly as long a service life due to the low current drain of the PL77A.

Phantom Power Battery Back-Up

The PL77A with 4.5-volt internal battery, and battery power switch "on", can be used as a back-up when the microphone is powered from an external supply. When faced with failure of the external supply the PL77A will draw its power from the internal battery without interruption of the audio signal.

Caution: Do not operate from a phantom supply with a 1.5-volt battery installed. Under this condition, if the battery power switch is "on" the phantom power will tend to charge the low-voltage battery. No immediate harm will result, but the small charging current over a period of time can cause the battery to leak with attendant corrosion damage.

USING THE BASS CONTOUR SWITCH

The bass contour switch shown in Figure 5 provides a tailoring of sound quality to a specific voice or sonic preference. With the switch in the normal (—) position, the up-close bass boost (proximity effect) inherent in the Single-D design provides a much more "robust" sound than the usual dynamic vocal mike. This sound has proven to be very popular. In the roll-off position (/), a less bass-heavy sound results, akin to that found in dynamic Single-D vocal mikes.

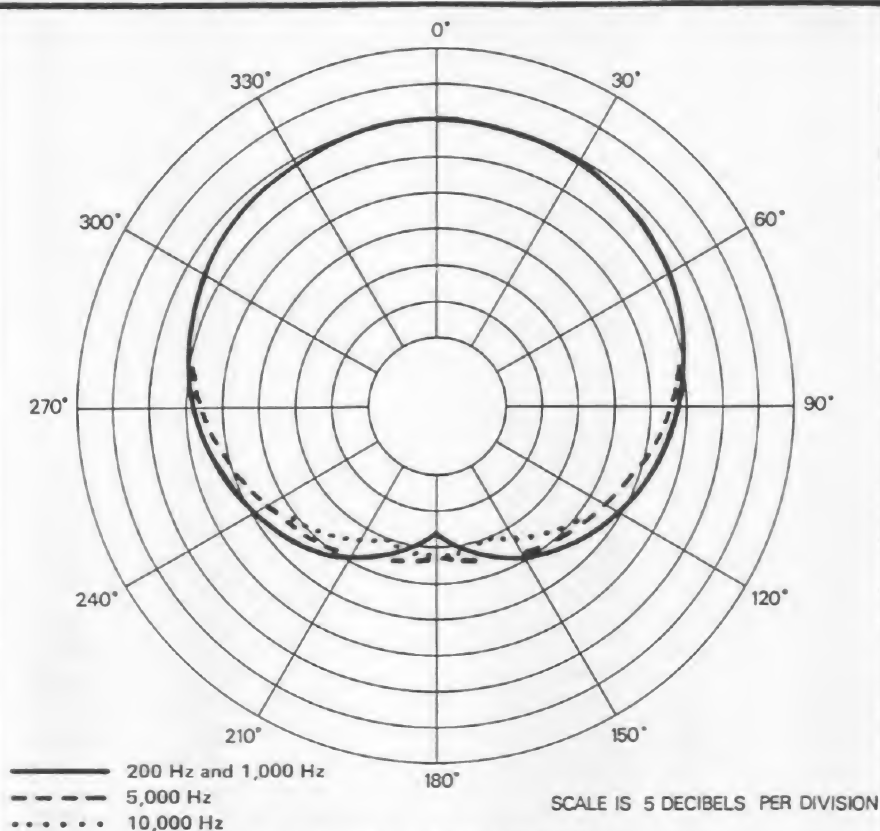


FIGURE 4 — Polar Response

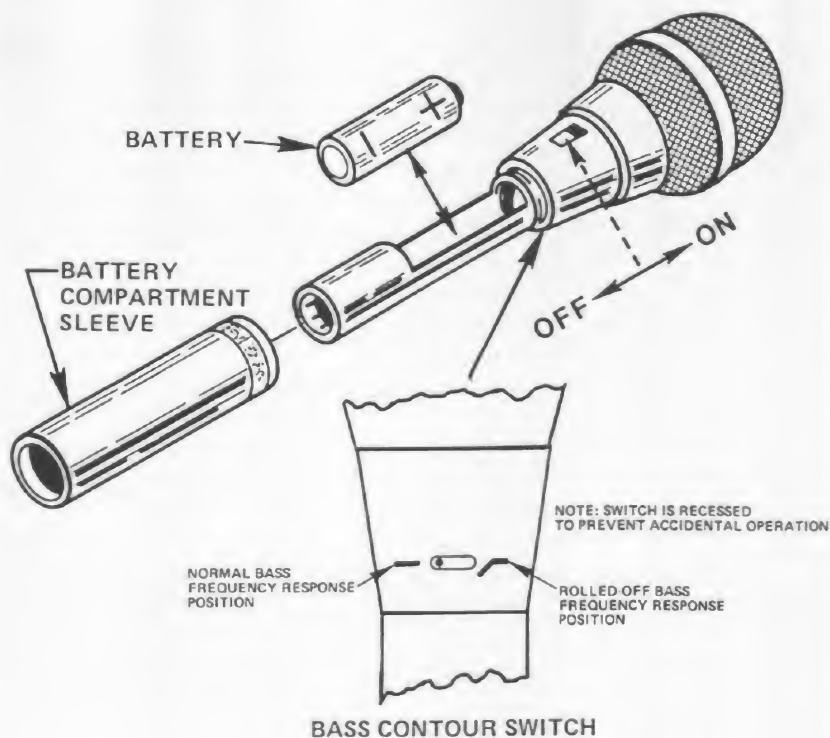


FIGURE 5 — Battery Replacement, On/Off Switch, & Bass Contour Switch

USING THE VARIABLE LOW-FREQUENCY RESPONSE (PROXIMITY EFFECT)

The PL77A's low-frequency response varies with the distance from the sound source to the microphone as shown in Figure 3. Maximum bass response is produced in close-up use with the microphone 1/4-inch from the sound source. Minimum bass response is experienced at distances greater than 24 inches. The solid curves in Figure 3 show the response variation with distance with the bass contour switch in the normal (—) position. The dashed curves show the variation with the contour switch in the roll-off (/) position.

Useful special effects can be created by an imaginative application of the PL77A's proximity effect:

1. By working closer to the microphone, the human voice will sound more robust, although intelligibility may be adversely affected.
2. Working close to the PL77A provides a reduced tendency to PA system feedback, over and above that provided by the cardioid directional characteristic and close working-distance alone. When close-talked, the substantial bass boost provides an increase in overall microphone output level. The mixer gain may be proportionately reduced, resulting

in a reduction of the system's sensitivity to feedback caused by sound entering the microphone from the distant loudspeakers.

3. For musical instrument pickup, the variable bass response can be utilized to achieve a "clean" bass pickup at a distance of 24 inches or more. By moving the PL77A to a few inches from the instrument, bass will be increased.

Caution note: with the sound source (lips) closer than 2 inches, bass response is increased dramatically (as shown in Figure 3). If too much signal is generated at the microphone, overloading in the amplifier input circuits may occur, causing severe distortion.

MAINTENANCE INSTRUCTIONS

You have purchased one of the finest electret condenser microphones available. A little care will allow you continued use of this precision instrument for many years. Your electret condenser microphone should not be left in the open sun or other hot environments where temperatures may approach or exceed 54.4° C (130° F) for any period of time. Following this suggestion will prolong the life of the generating element.

If you feel your unit is malfunctioning, have it examined and repaired only by an Electro-Voice authorized repair service station.

WARRANTY (Limited) — All

Electro-Voice PL Microphones are guaranteed for two years from date of original purchase against defects in workmanship and materials. If such malfunction occurs, microphone will be repaired or replaced (at our option) without charge for materials or labor if delivered prepaid to the proper Electro-Voice service facility. Unit will be returned prepaid. Warranty does not cover finish or malfunction due to abuse or operation at other than specified conditions. Repair by other than Electro-Voice or its authorized service agencies will void this guarantee.

For repair information and service locations, please write: Service Department, Electro-Voice, Inc., 600 Cecil Street, Buchanan, Michigan 49107 (Phone 616/695-6831) or 8234 Doe Avenue, Visalia, CA 93277 (209/625-1330, -1).

Electro-Voice also maintains complete facilities for non-warranty service of E-V products.

Specifications subject to change without notice.